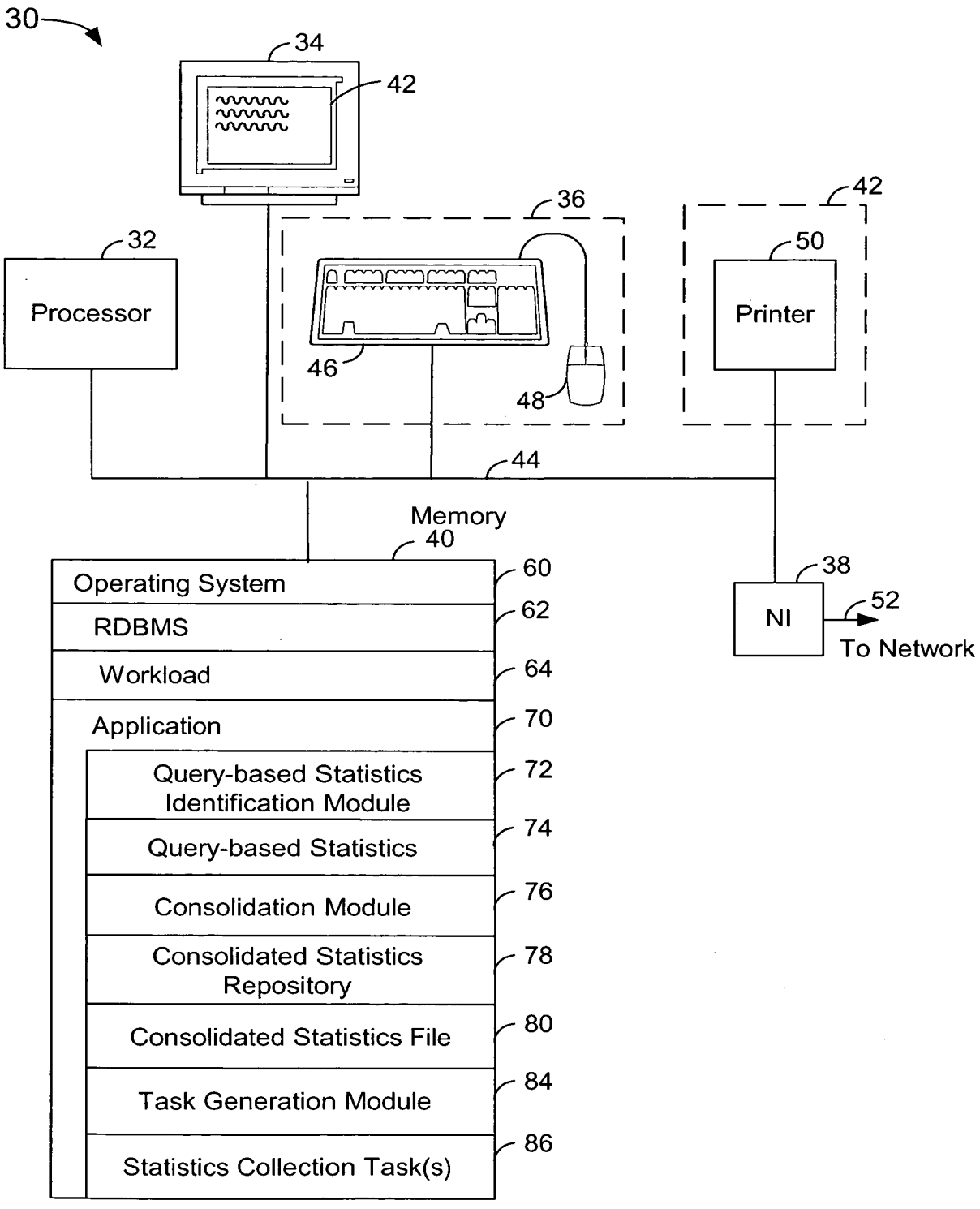
30
34
42
36
42
32
50
Processor
Printer
46
48
44
Memory
40
38
NI
52
To Network
Operating System
60
RDBMS
62
Workload
64
Application
70
Query-based Statistics Identification Module
72
Query-based Statistics
74
Consolidation Module
76
Consolidated Statistics Repository
78
Consolidated Statistics File
80
Task Generation Module
84
Statistics Collection Task(s)
86

FIG. 1

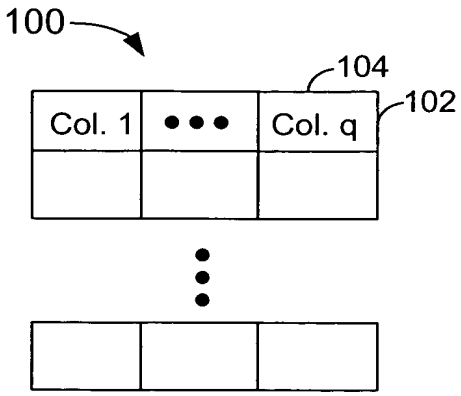

Fig. 2

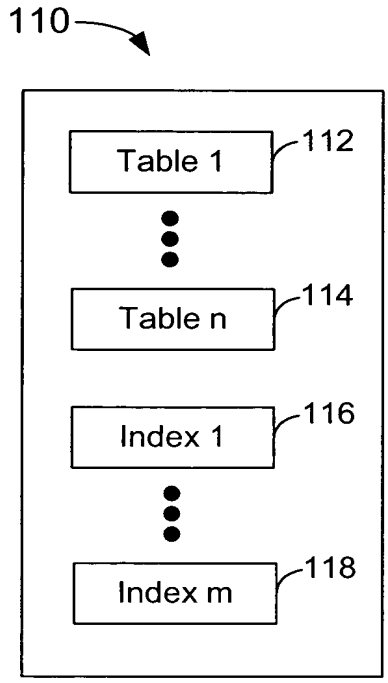

Fig. 3

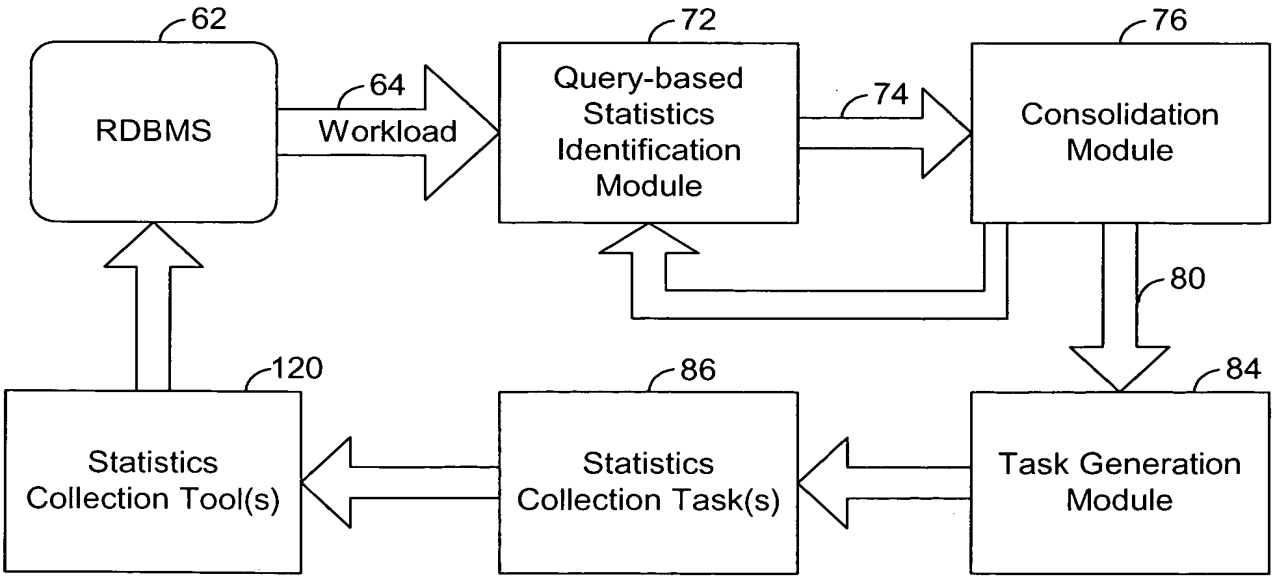

FIG. 4

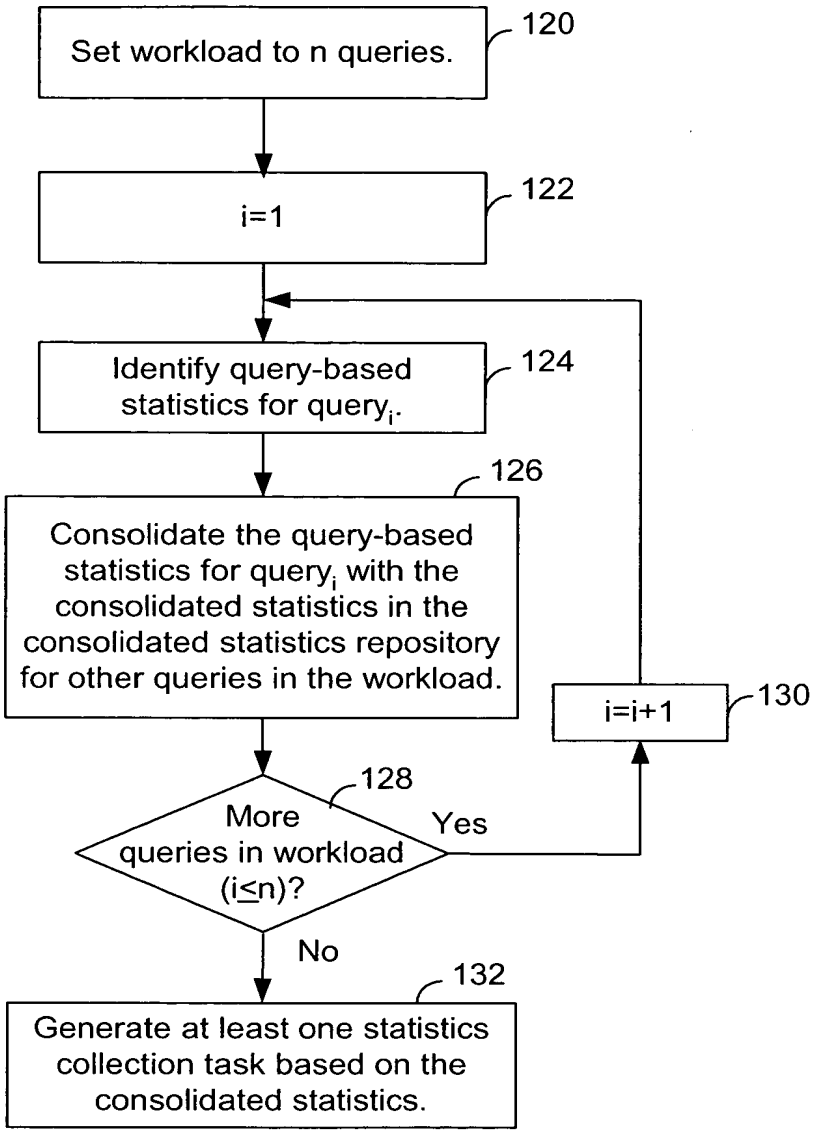
Set workload to n queries.
120
i=1
122
Identify query-based statistics for query$_i$.
124
126
Consolidate the query-based statistics for query$_i$ with the consolidated statistics in the consolidated statistics repository for other queries in the workload.
i=i+1
130
128
More queries in workload (i≤n)?
Yes
No
132
Generate at least one statistics collection task based on the consolidated statistics.

FIG. 5

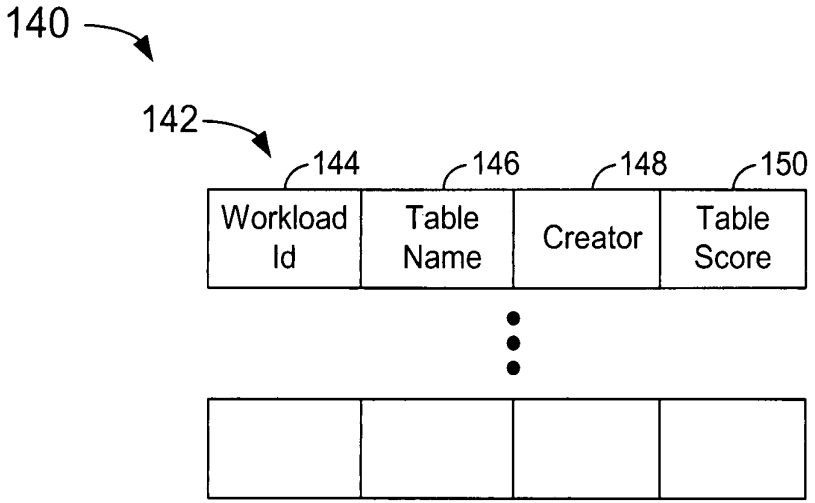

FIG. 6A

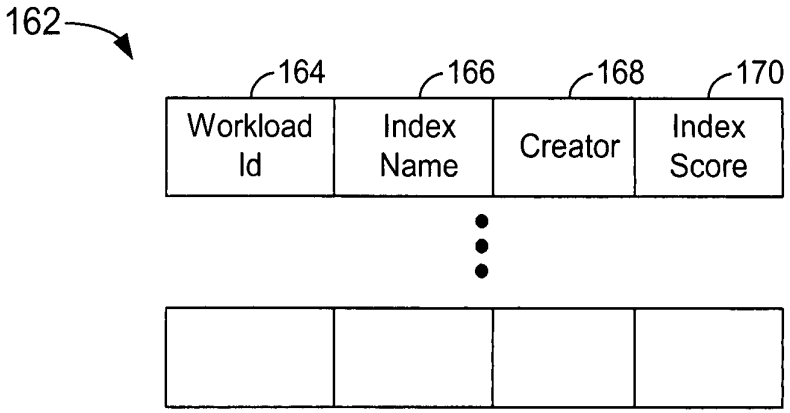

FIG. 6B

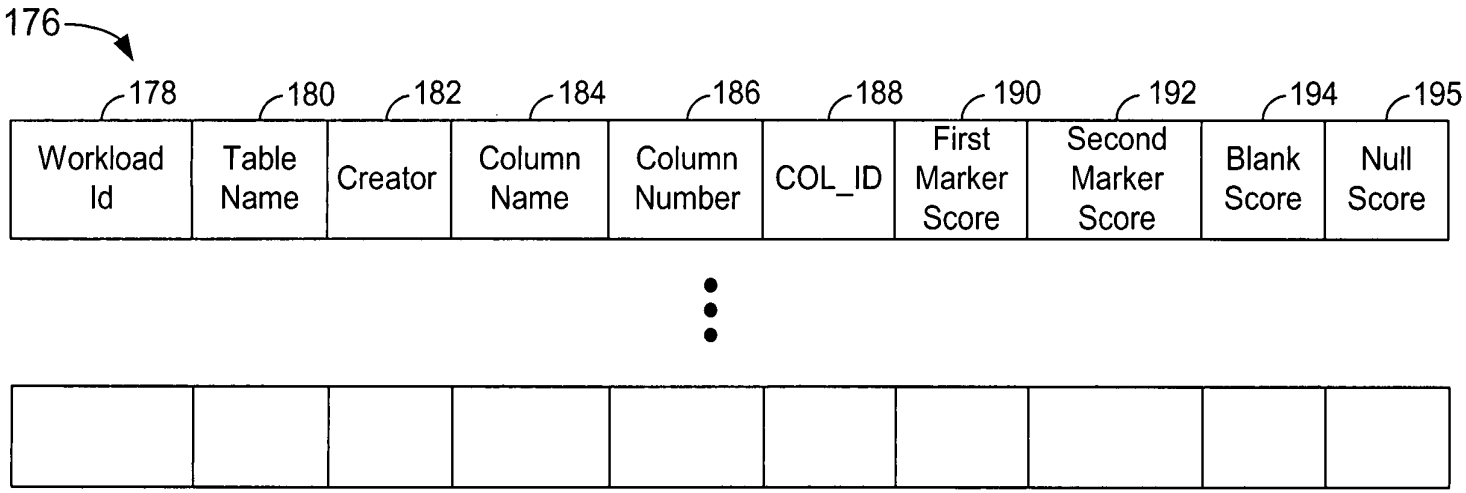

FIG. 6C

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4/10

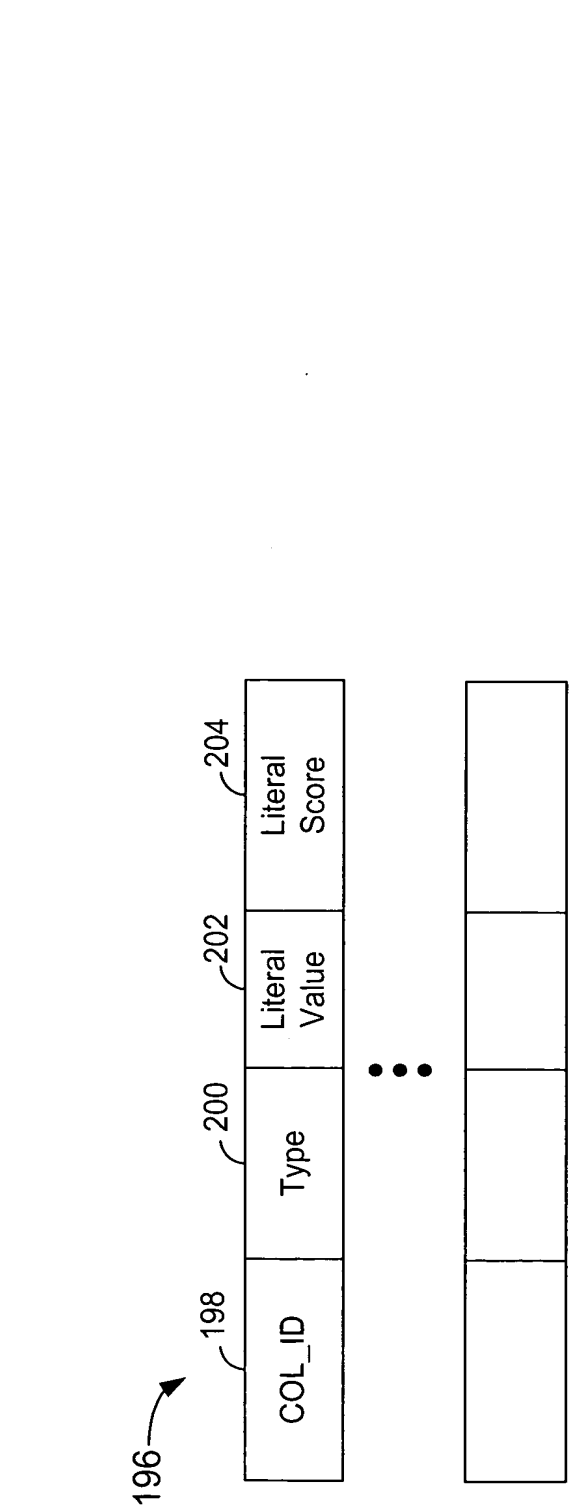
140
196
198
COL_ID
200
Type
202
Literal Value
204
Literal Score

FIG. 6D

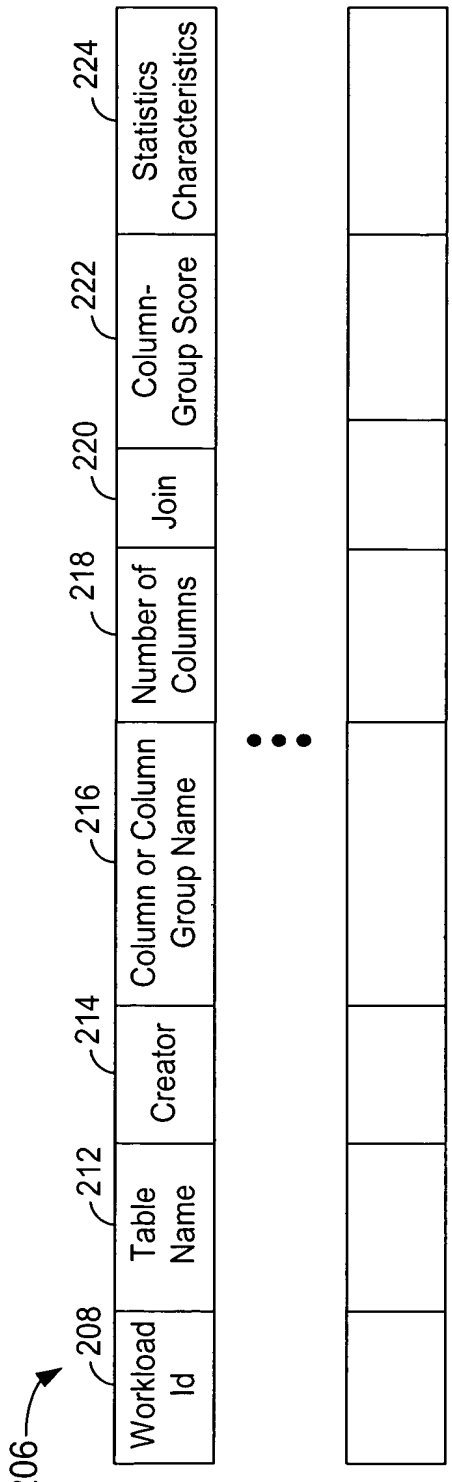
206
208
Workload Id
212
Table Name
214
Creator
216
Column or Column Group Name
218
Number of Columns
220
Join
222
Column-Group Score
224
Statistics Characteristics

FIG. 6E

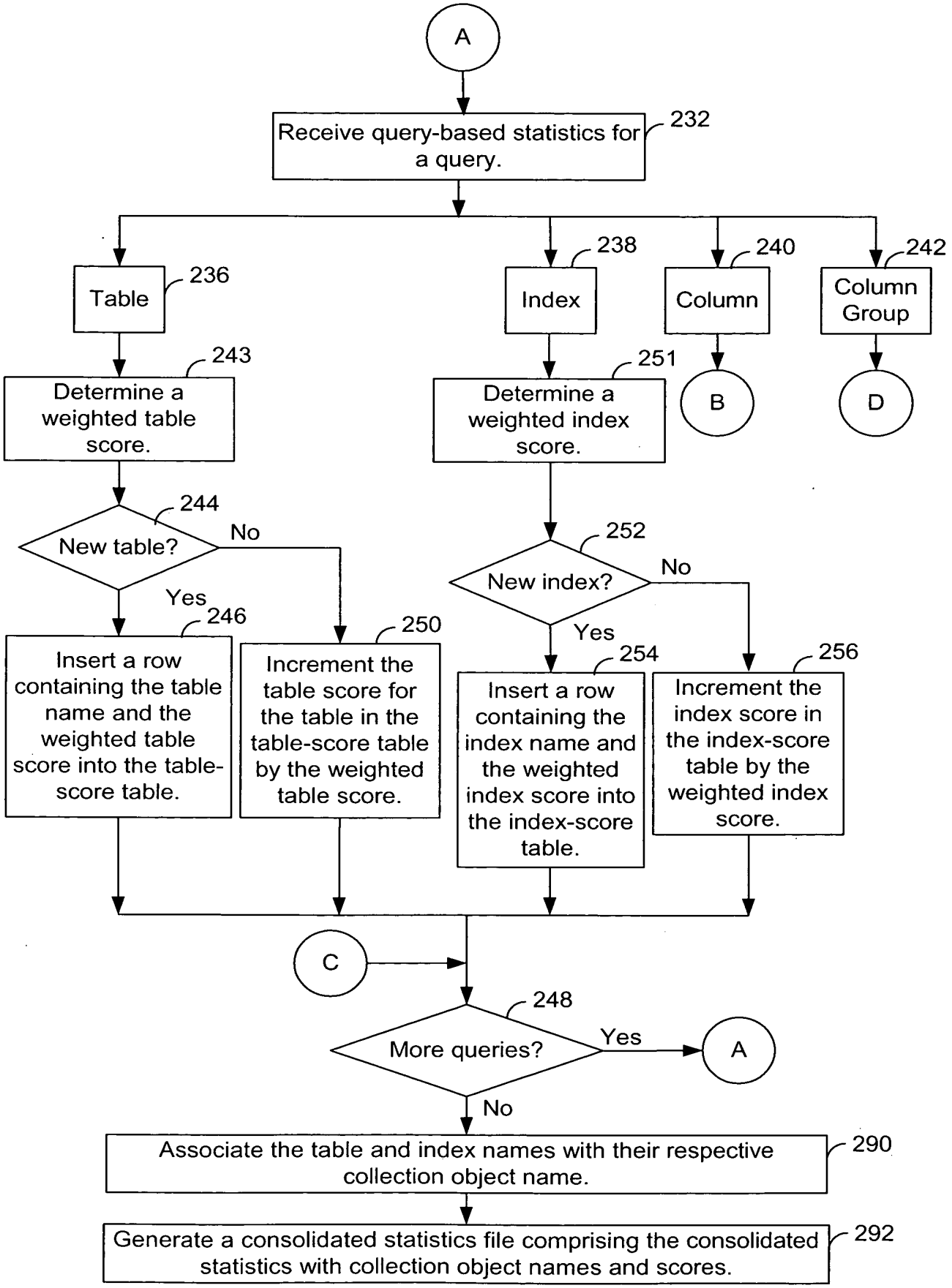
A
Receive query-based statistics for a query.
232
Table
236
Index
238
Column
240
Column Group
242
Determine a weighted table score.
243
Determine a weighted index score.
251
B
D
New table?
244
No
Yes
246
Insert a row containing the table name and the weighted table score into the table-score table.
250
Increment the table score for the table in the table-score table by the weighted table score.
New index?
252
No
Yes
254
Insert a row containing the index name and the weighted index score into the index-score table.
256
Increment the index score in the index-score table by the weighted index score.
C
More queries?
248
Yes
A
No
Associate the table and index names with their respective collection object name.
290
Generate a consolidated statistics file comprising the consolidated statistics with collection object names and scores.
292

FIG. 7A

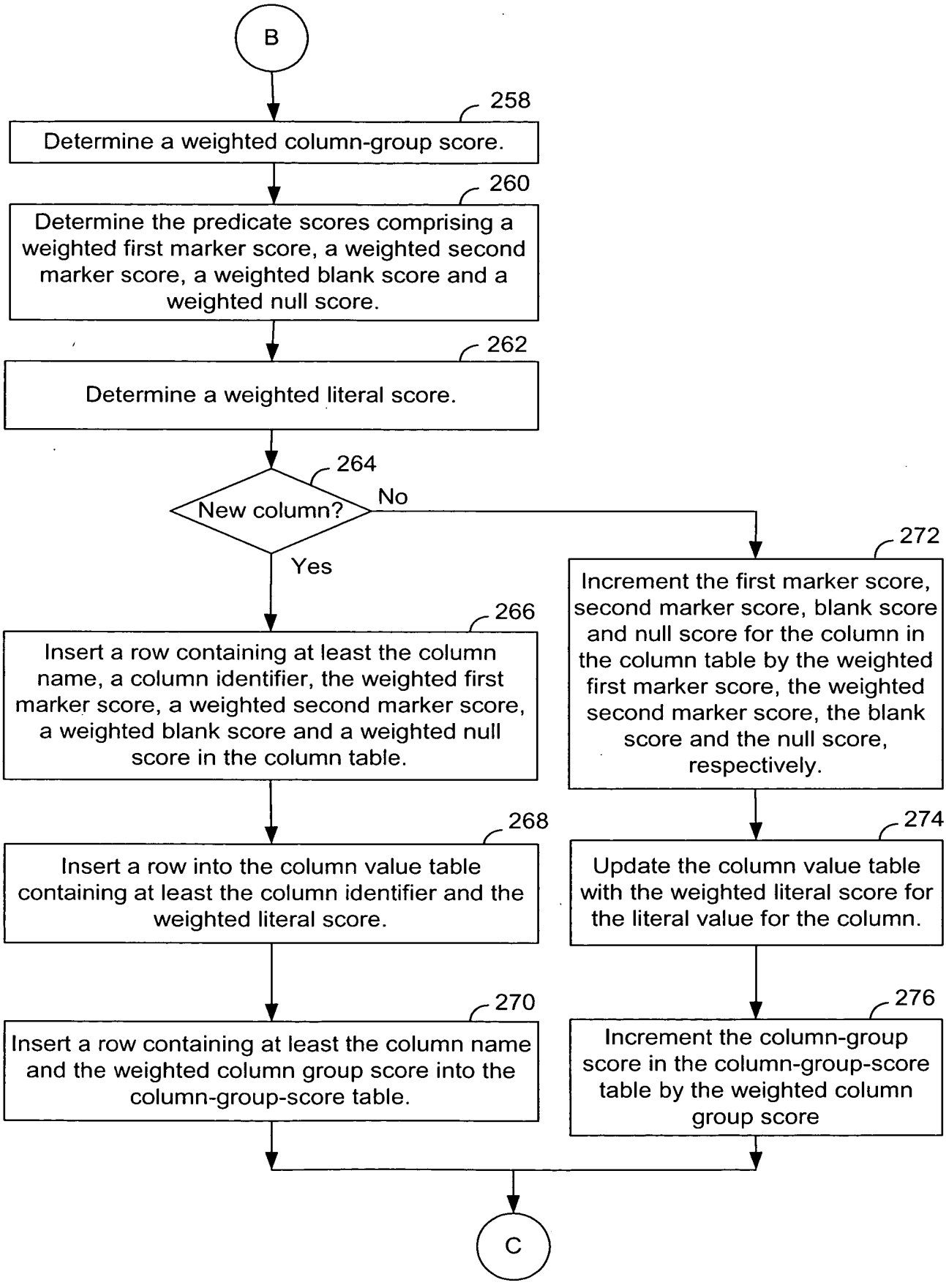
B
258
Determine a weighted column-group score.
260
Determine the predicate scores comprising a weighted first marker score, a weighted second marker score, a weighted blank score and a weighted null score.
262
Determine a weighted literal score.
264
New column?
No
Yes
272
Increment the first marker score, second marker score, blank score and null score for the column in the column table by the weighted first marker score, the weighted second marker score, the blank score and the null score, respectively.
266
Insert a row containing at least the column name, a column identifier, the weighted first marker score, a weighted second marker score, a weighted blank score and a weighted null score in the column table.
268
Insert a row into the column value table containing at least the column identifier and the weighted literal score.
274
Update the column value table with the weighted literal score for the literal value for the column.
270
Insert a row containing at least the column name and the weighted column group score into the column-group-score table.
276
Increment the column-group score in the column-group-score table by the weighted column group score
C

FIG. 7B

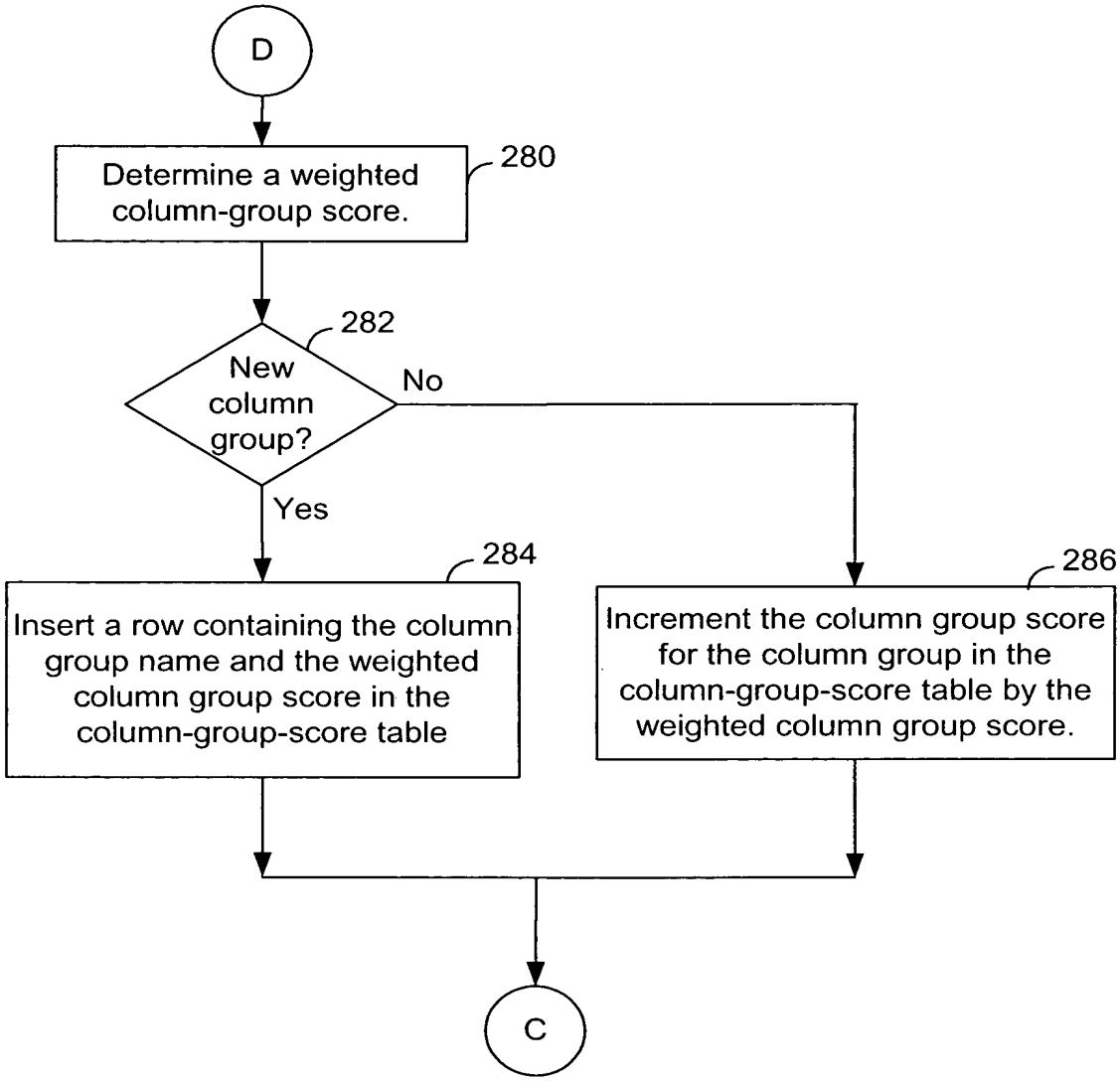
D
Determine a weighted column-group score.
280
282
New column group?
No
Yes
284
Insert a row containing the column group name and the weighted column group score in the column-group-score table
286
Increment the column group score for the column group in the column-group-score table by the weighted column group score.
C

FIG. 7C

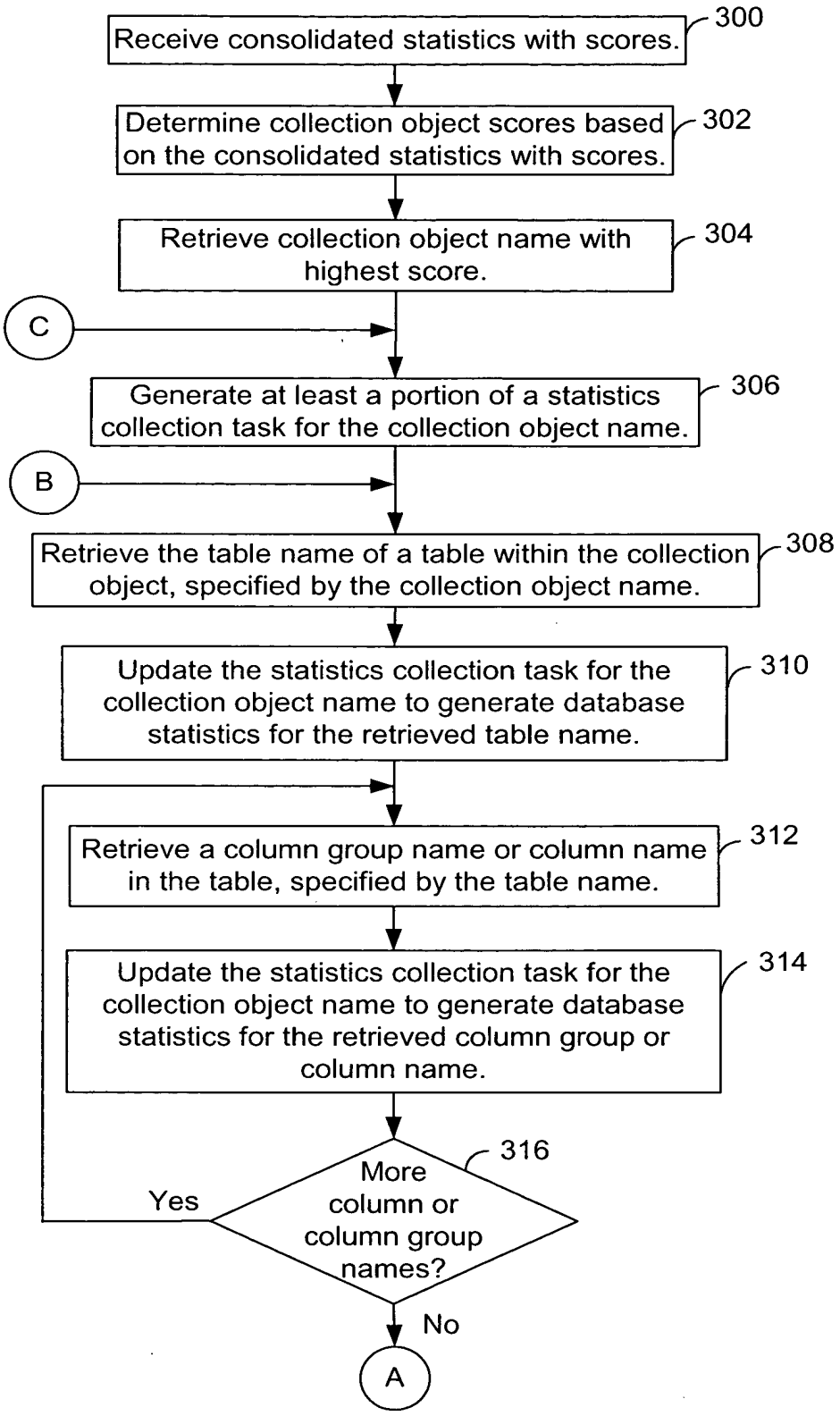
Receive consolidated statistics with scores.
300
Determine collection object scores based on the consolidated statistics with scores.
302
Retrieve collection object name with highest score.
304
C
Generate at least a portion of a statistics collection task for the collection object name.
306
B
Retrieve the table name of a table within the collection object, specified by the collection object name.
308
Update the statistics collection task for the collection object name to generate database statistics for the retrieved table name.
310
Retrieve a column group name or column name in the table, specified by the table name.
312
Update the statistics collection task for the collection object name to generate database statistics for the retrieved column group or column name.
314
More column or column group names?
316
Yes
No
A

FIG. 8A

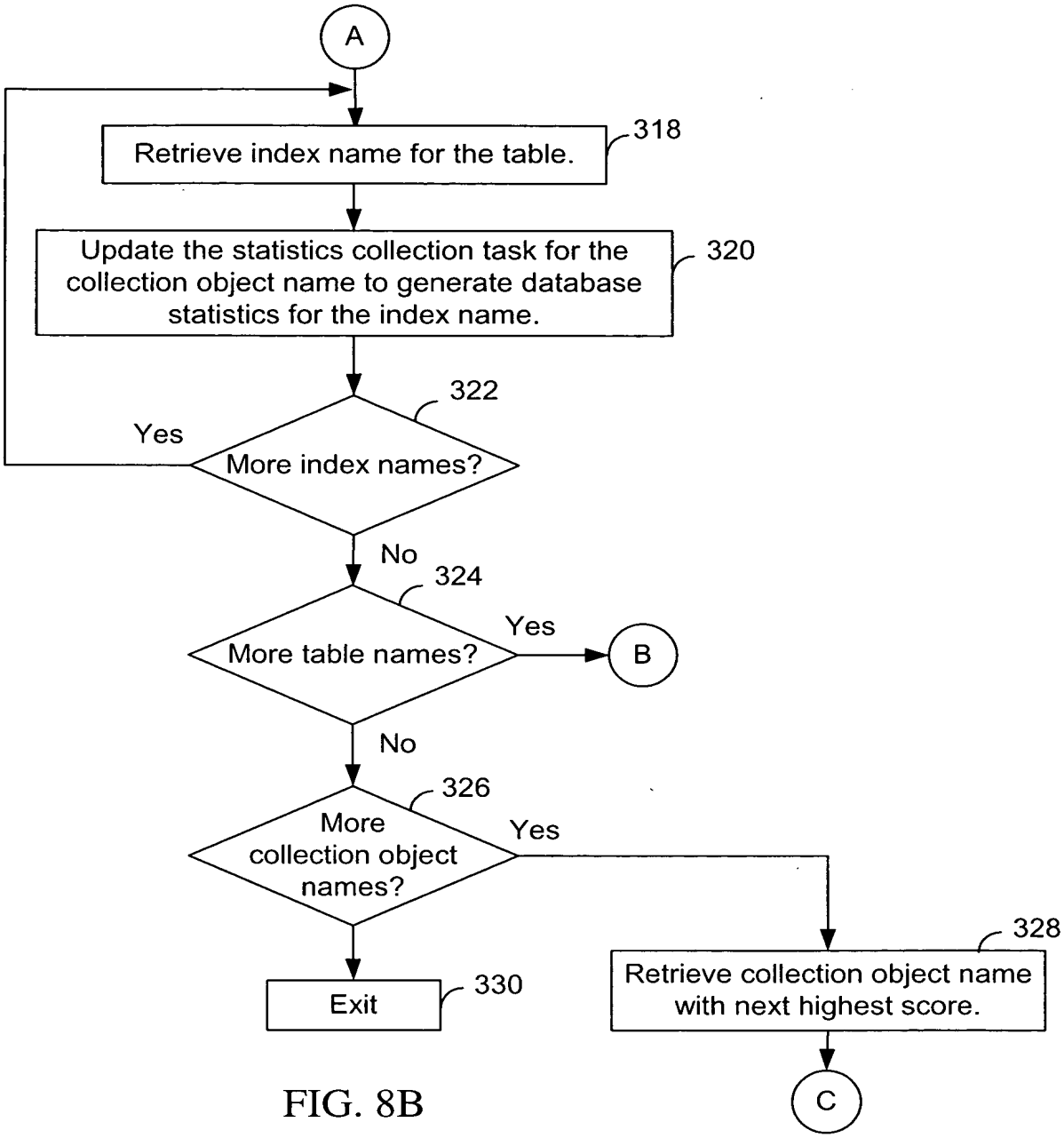
A
Retrieve index name for the table.
318
Update the statistics collection task for the collection object name to generate database statistics for the index name.
320
322
Yes
More index names?
No
324
More table names?
Yes
B
No
326
More collection object names?
Yes
328
Retrieve collection object name with next highest score.
Exit
330
C

FIG. 8B